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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/388,804	09/01/1999	PETE N. MOORE	81862.P157	4456

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EXAMINER	
LY, ANH VU H	

ART UNIT	PAPER NUMBER
2667	10

DATE MAILED: 05/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/388,804	MOORE, PETE N.	
	Examiner	Art Unit	
	Anh-Vu H Ly	2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This communication is in response to applicant's amendment filed March 18, 2004. Claims 1-23 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 9, 12, 22, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Putcha et al (US Pub 2003/0198241 A1). Hereinafter, referred to as Putcha.

With respect to claims 1, 9, and 12, Putcha discloses in Fig. 1, a computer network comprising an ATM network 10, private networks 20, 40, 60 (LANs - Ethernet, Token Ring, FDDI) and a public network 55 (IP network). ATM network 10 includes network switches 12, 14, and 16. ATM switches 12, 14, and 16 connect to private networks 20, 40, and 60. Herein, ATM switch 12 (an interface) connects to LAN 20 (herein, switch 12 including plurality of ports) and couples to the public network 55 via router 50 (even though there is only a path illustrated in Fig. 1 for connecting the switch 12 to the router 50 but it should be understood that path may including a plurality of links) (an interface for coupling a first number of LAN ports and a second number of WAN links). Further, as illustrated in Fig. 1, LANs including Ethernet,

Token Ring, and FDDI therefore, packets have variable lengths (LAN ports providing packets of data having a plurality of sizes).

Putcha discloses in paragraphs 64-65, a method of allocating buffers (for each input port) (controlling utilization of router resource) based on the utilization of the output ports (bandwidth availability of corresponding bundles of WAN links assigned to LAN port), e.g., port line speed, aggregate PCR, aggregate SCR for all connections (the utilization by each LAN port being controlled according to the bandwidth availability of corresponding bundles of the WAN links assigned to each of the LAN ports).

Putcha discloses (70th paragraph) that buffer allocation algorithm (for input ports) (controlling utilization of router resource) may be performed when opening a new connection or in general, at any time during the operation when there is an unexpectedly high cell loss. Herein, the unexpectedly high cell loss (considered by the examiner) e.g., refers to the ratio of the receiving rate, at the input, greater than the processing or switching rate of the switch (switching capacity of the router resource). Therefore, LAN port (buffers) is controlled according to the switching capacity of the router resource. Furthermore, the LAN port capacity (page 4, 53th paragraph) is considered as equivalent to the switching capacity of the router resource by the examiner (the utilization by each LAN port being controlled according to switching capacity of the router resource).

With respect to claims 22 and 23, Putcha discloses in Fig. 1, a computer network implementing the adaptive buffer allocation. Therefore, instructions regarding the adaptive buffer allocation are stored in the memory of the switches or routers (sequences of instructions is

embodied on one of a floppy disk and a CD-ROM and in the form of electrical signals transported through a communication medium).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 5-8 and 16-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Hanson et al (US Patent No. 5,633,861). Hereinafter, referred to as Hanson.

With respect to claims 5-8 and 16-19, Hanson discloses in Fig. 3, that packets are admitted to the switch according to network utilization information. Hanson discloses (col. 9, lines 20-40) that CUF is the key factor of the traffic management system. It is the ratio of the demand for network resources to the total available resources. The network resources being monitored are processor power (switching capacity of the router resource) and trunk bandwidth (bandwidth availability of a corresponding exit point). The CUF value reported by each node is the maximum of both processor utilization and trunk utilization (determining, at an entry port of the router resource, whether or not to admit inbound traffic according to a fair allocation distribution scheme that allows traffic to be admitted according to bandwidth availability of a corresponding exit point for the traffic and a current utilization of total switching capacity of the router resource).

With respect to claims 20 and 21, Hanson discloses (col. 11, lines 12-30) that packets are marked as committed packets, statistically committed packets and excess packets. Once all credits have been exhausted during a measurement period, packets are discarded. The marking of packets allows the transit modules to selectively discard packets (at the input interfaces of the switches) under extreme network congestion situations, e.g., such as when the ratio of the total number of offered packets equals to or greater than the maximum switching capacity of the processor (col. 9, lines 34-39) (throttling back those input ports which attempt to exceed the output bandwidth capacity of their associated output links or which attempting to utilize more than their allocated share operating at the total switching capacity).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Putcha et al (US Pub 2003/0198241 A1) in view of Bonomi et al (US Patent No. 5,838,681). Hereinafter, referred to as Putcha and Bonomi.

With respect to claims 2 and 13, Putcha discloses (see Abstract) a method of allocating buffer units for storing received packets based on the priority and port utilizations. Putcha does not disclose individual ones of the LAN ports are permitted to exceed their fair share of switching capacity of the router resource if a current switching load due to traffic from all of the

LAN ports is less than a maximum switching capacity for the router resource. Bonomi discloses (see Abstract) a method for optimizing the utilization of system resources by enabling ports having a physical capacity which substantially exceeds the capacity of a conventional ATM switch to be interconnected for data transfer. Bonomi discloses (col. 9, lines 37-40) that the CPU allocates switch capacity among the ports in accordance with their needs, as long as the total aggregate capacity of the switching core (switching capacity of the router) is not exceeded. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include dynamic allocation of port bandwidth in Putcha's system, as suggested by Bonomi to maximize the aggregate switching capacity of the switch for data transfer.

5. Claims 3-4, 10-11, and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Putcha et al (US Pub 2003/0198241 A1) in view of Hanson et al (US Patent No. 5,633,861). Hereinafter, referred to as Putcha and Hanson.

With respect to claims 3-4, 10-11, and 14-15, Putcha discloses (see Abstract) a method of allocating buffer units for storing received packets based on the priority and port utilizations. Putcha does not disclose if a current switching load due to traffic from all of the LAN ports is equal to a maximum switching capacity of the router resource then those of the LAN ports that are attempting to utilize more than their fair share of the bandwidth availability or switching capacity are throttled back. Hanson discloses (col. 9, lines 20-40) that CUF is the key factor of the traffic management system. It is the ratio of the demand for network resources to the total available resources. The network resources being monitored are processor power and trunk bandwidth. The CUF value reported by each node is the maximum of both processor utilization

and trunk utilization. Further, Hanson discloses (col. 11, lines 12-30) that packets are marked as committed packets, statistically committed packets and excess packets. Once all credits have been exhausted during a measurement period, packets are discarded. The marking of packets allows the transit modules to selectively discard packets (at the input interfaces of the switches) under extreme network congestion situations, e.g., such as when the ratio of the total number of offered packets equals to or greater than the maximum switching capacity of the processor (col. 9, lines 34-39) (if a current switching load due to traffic from all of LAN ports is equal to a maximum switching capacity of the router resource then those of LAN ports that are attempting to utilize more than their fair share of the bandwidth availability or the switching capacity are throttled back). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include traffic management and congestion control method in Putcha's system, as suggested by Hanson to efficiently manage the packet-based networks.

Response to Arguments

6. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh-Vu H Ly whose telephone number is 703-306-5675. The examiner can normally be reached on Monday-Friday 7:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 703-305-4378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

avl

CHI PHAM
SUPERVISORY PATENT EXAMINER
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